

Amendments to the Drawings:

A replacement sheet attached to this paper replaces the sheet that previously included FIG. 4. FIG. 4 has been amended to remedy an objection raised against the drawings with regard to whether a central orifice 1100 as described in line 24 of page 6 of the specification of the above-referenced patent application as filed. FIG. 4 has been amended to add the reference numeral "1100," appearing now near the center of the drawing, and a lead line from the reference numeral to the periphery of the central orifice. Prior to this amendment, the periphery of the central orifice was illustrated, without a reference numeral, and would be discernible to one of ordinary skill in the art to which the claimed invention pertains. Thus, the Applicant submits that no new matter has been added by this amendment.

Furthermore, FIG. 4 has been amended to remedy an objection raised against the drawings with regard to whether a motor as cited in Claim 10 is shown in any of the drawings. FIG. 4 has been amended to add a diagrammatic representation of the motor and a lead line representing that the motor drives the illustrated cutting head. Prior to this amendment, the motor was a part of the disclosure of the patent application at least by way of Claim 10, as would be appreciated by one of ordinary skill in the art to which the claimed invention pertains. Thus, the Applicant submits that no new matter has been added by this amendment.

REMARKS/ARGUMENTS

The Office Action raises numerous objections to the specifications and drawings, and rejects Claims 1-10 under 35 U.S.C. § 112(2nd ¶). The Office Action also rejects claims 1-4 and 10 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,905,465 to Jones et al. The Office Action also rejects Claims 1-6 and 10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent no. 5,048,278 to Jones et al. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones '278 in view of U.S. Patent No. 5,463,815 to Fogle. Claims 8-9 are rejected under 35 U.S.C. 103(a) being unpatentable over Jones '278 in view of U.S. Patent no. 4,756,146 to Rouse.

Objections Toward the Written Specification

An objection regarding section headings has been addressed by amendments made herein by way of added section headings and has therefore been remedied. Objections regarding the Abstract section of the specification have been addressed by amendments made herein and have therefore been remedied. Objections toward certain paragraphs of pages 1, 6, 7, 10, and 12 have been addressed by amendments made herein by way of replacement paragraphs and have therefore been remedied.

The Applicant respectfully submits, however, that the phrase "outlet opening 115" in line 15 of page 14 requires no remedy. As shown in FIG. 9 of the drawings, and as detailed in lines 29-33 of page 14 and lines 1-6 of page 15 of the specification, the teeth 404 of a shoe 400 engage the cutting string 300 when the device is in use impacting (and cutting) plants. The cutting string 300, when in use impacting plants, extends outwardly from the cutting head 100 (see also FIG. 8) by way of the opening 115 (FIG. 9). The opening 115 may therefore be reasonably called an "outlet opening." The Applicant respectfully submits that all objections toward the written specification have been addressed and requests that the objections be withdrawn.

Claims Objections and Claims Rejections Under 35 U.S.C. § 112(2nd ¶)

An objection raised against Claim 6 with regard to the phrase "its cutting ridge" has been

remedied by amendment according to the suggestion of the Examiner. Rejections to Claims 1-10 with regard to the phrase "or similar" appearing in the preamble of Claim 1 have been remedied by removal of the phrase. A rejection of Claim 6 with regard to the antecedent basis of the phrase "the plants" has been remedied by removal of the word "the" to clarify that the cited "plants" are introduced in Claim 6 without need for antecedent basis.

The rejection of Claim 2, alleging that a recited value range renders the claim indefinite, has been addressed by an amendment herein and is believed to be remedied. Claim 1 includes that a distance (H2), by which two planes are mutually spaced, is greater than or equal to approximately 1.8 times the height (H1). Thus, Claim 1 recites a relative lower bound on the variable H2. Claim 2, which depends from Claim 1, includes that the distance (H2) is between approximately 1.8 times the height (H1) of each string and approximately 5 times the height (H1) of each string. Thus, Claim 2 expressly recites a relative upper bound on the variable H2, without contradiction to Claim 1. Indeed, Claim 2 depends from Claim 1 and therefore recites both the relative lower bound and the relative upper bound, which together can be represented as

$$\text{approximately } 1.8 \times H1 \leq H2 \leq \text{approximately } 5 \times H1$$

where H2 now is shown disposed between its relative lower bound, first expressed in Claim 1, on the left and its relative upper bound, first expressed directly in Claim 2, on the right. The Applicant believes that the scope of Claim 2 has been unaffected by amendments herein.

The Applicant respectfully submits that all objections raised against the claims and all rejections of the claims under 35 U.S.C. § 112 have been remedied or addressed by these remarks, and respectfully requests that these objections and rejections be withdrawn.

Claims Rejections Under 35 U.S.C. § 102(b)

Claims 1-4 and 10 were rejected as being anticipated by U.S. Patent No. 4,905,465, to which will be referred as "the '465 Jones patent." Claim 1 recites that the axes of cutting string outlets are distributed in at least two planes (Pac, Pcb) mutually spaced by a distance (H2) greater than or equal to approximately 1.8 times the height (H1) of each string. For example, a distance H2 and a height H1 are shown in FIG. 7 of the above-referenced patent application as

filed, where the height H1 represents the approximate height of a cutting string. Improved vegetation chopping is provided by such spaced planes as described in lines 7-19 of page 11 of the specification. It should be noted that the heights H1 (see both 113ac and 113cb of FIG. 7), if projected upon the central (rotational) axis of the figure, are not overlapping and are spaced by the distance H2.

The '465 Jones patent, however, illustrates rotary cutting heads in which cutting string outlets, or holes F, are arranged in patterns that progress circumferentially and along the rotational axis of the cutting heads, with apparent overlap by the holes with respect to the central rotational axes of the heads. For example, in FIGS. 11-18, the holes F appear to be positioned in closely spaced planes, with little apparent distance between the planes. Indeed, in any of these figures, the heights or diameters of the holes would clearly overlap if projected upon a central rotational axis (not explicitly illustrated) of the cutting head. Thus, the '465 Jones patent does not anticipate Claim 1 of the above-referenced patent application.

Therefore, Claim 1 is patentable over the '465 Jones patent. Claims 2-10, which depend directly or indirectly from Claim 1, are patentable over the '465 Jones patent at least for the reasons by which Claim 1 is patentable. Accordingly, the Applicant respectfully requests that these rejections set forth against Claims 1-4 and 10 be withdrawn.

Claims Rejections Under 35 U.S.C. § 103(a)

Claims 1-6 and 10 were rejected as being unpatentable over U.S. Patent no. 5,048,278, to which will be referred as "the '278 Jones patent. Claim 1 recites that the axes of cutting string outlets are distributed in at least two planes (Pac, Pcb) mutually spaced by a distance (H2) greater than or equal to approximately 1.8 times the height (H1) of each string. For example, distances H1 and H2 are shown in FIG. 7 of the of above-referenced patent application as filed, where the height H1 represents the approximate height of a cutting string. Improved vegetation chopping is provided by such spaced planes as described in lines 7-19 of page 11 the specification. It should be noted that the heights H1, if projected upon the central (rotational) axis of the figure, are not overlapping and are spaced by the distance H2.

The '278 Jones patent, however, illustrates a rotary cutting head in which cutting string

outlets are disposed at alternating heights, with apparent overlap by the holes with respect to the central rotational axes of the heads. For example, in FIG. 4, the openings 52 and 54 are disposed at different elevations as described in lines 65-68 of column 3 and line 1 of column 4 of the '278 Jones patent. But like the holes illustrated in the '465 Jones patent, the openings 52 and 54 of the '278 Jones patent would clearly overlap if projected upon a central rotational axis of the cutting head. Thus, the '278 Jones patent does not render Claim 1 of the above-referenced patent application unpatentable.

Therefore, Claim 1 is patentable over the '278 Jones patent. Claims 2-10, which depend directly or indirectly from Claim 1, are patentable over the '278 Jones patent at least for the reasons by which Claim 1 is patentable. Accordingly, the Applicant respectfully requests that these rejections set forth against Claims 1-6 and 10 be withdrawn.

Claim 7 was rejected as being unpatentable over the '278 Jones patent in view of U.S. Patent no. 5,463,815, to Fogle. However, Claim 7 depends indirectly from Claim 1, by way of Claim 6, and Claim 1 is patentable over the '278 Jones patent for reasons expressed directly above. The Fogle patent, which is apparently cited with regard to cross-sectional shapes of cutting strings, illustrates only a single cutting string outlet, opening 11 in FIG. 1, along the periphery of the hub of a cutting head. The Fogle patent does not even illustrate multiple sting outlets and thus does not provide material regarding a distance by which multiple planes defined by multiple cutting string outlets are mutually spaced. Thus, the '278 Jones patent, the Fogle patent, and their combination fail to render Claim 1, and Claim 7 which depends therefrom, unpatentable. Accordingly, the Applicant respectfully requests that this rejection set forth against Claim 7 be withdrawn.

Claims 8-9, which relate to parts by which the cutting head of Claim 1 is assembled, were rejected as unpatentable over the '278 Jones patent in view of U.S. Patent no. 4,756,146 to Rouse. Claim 1, from which claims 8 and 9 depend, recites that the axes of cutting string outlets are distributed in at least two planes (Pac, Pcb) mutually spaced by a distance (H2) greater than or equal to approximately 1.8 times the height (H1) of each string. In the Jones '278 patent, the holes F appear to be positioned in closely spaced planes, with little apparent distance between the planes. The Rouse patent illustrates a string trimmer head in which passage-ends 30 and 34,

which define string outlets, of string passages 14 are disposed along a single plane as shown in the various figures. Thus, the '278 Jones patent, the Rouse patent, and their combination fail to render Claim 1, and Claims 8-9 which depend therefrom, unpatentable. Accordingly, the Applicant respectfully requests that these rejections set forth against Claims 8-9 be withdrawn.

New Claims 11-12 Are Patentable

New independent Claim 11 recites a cutting head in which a plurality of string outlets are distributed in a plurality of mutually spaced planes, wherein the mutually closest two said planes are mutually spaced from each other by a distance (H2) that is greater than or equal to approximately 1.8 times the height (H1) of each string. Thus, new Claim 11 is patentable over all of the cited references, and over any combinations thereof, for at least the reasons by which Claim 1 is patentable as described above. Claim 12 depends from Claim 11 and is therefore patentable as well.

Dependent Claims

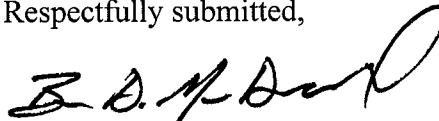
The patentability of each independent claim over the cited references has been argued as set forth above. The Applicant does not take this opportunity to argue the merits of the dependent claims. However, the Applicant does not concede that the dependent claims are not independently patentable and reserves the right to argue the patentability of the dependent claims at a later date if necessary.

Appl. No.: 10/543,028
Amdt. dated March 3, 2008
Reply to Office Action of December 3, 2007

Conclusion

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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